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मानक

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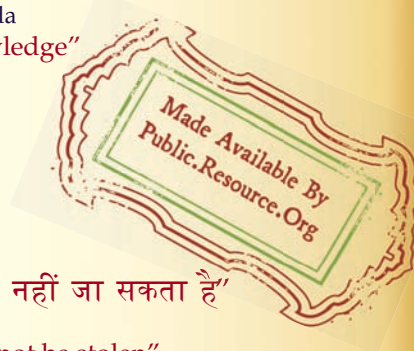
IS 13680 (1993): Imported Rapeseed Oil [FAD 13: Oils and Oilseeds]



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“Knowledge is such a treasure which cannot be stolen”

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REAFFIRMED

1999

IS 13680 : 1993

भारतीय मानक

आयातित तोरिया बीज के तेल — विशिष्ट

Indian Standard

IMPORTED RAPESEED OIL — SPECIFICATION

UDC 665.334.94

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

March 1993

Price Group 2

**AMENDMENT NO. 1 OCTOBER 1995
TO
IS 13680 : 1993 IMPORTED RAPESEED OIL —
SPECIFICATION**

(*Foreword, para 5*) — Add the following para 6 after para 5:

‘ A scheme for labelling environment friendly products to be known as ECO Mark has been introduced at the instance of the Ministry of Environment and Forests (MEF). The ECO Mark shall be administered by the Bureau of Indian Standards (BIS) under the BIS Act, 1986 as per the Resolution No. 71 dated 20 February 1991 as published in the Gazette of the Government of India vide GSR 85(E) dated 21 February 1991. For a product to be eligible for marking with the ECO Mark it shall also carry the Standard Mark of BIS for quality besides meeting additional optional environment friendly (EF) requirements. The EF requirements for imported rapeseed oil are therefore being included through an amendment.

This amendment is based on the Gazette Notification No. 678 dated 30 August 1994 for Labelling Edible Oils, Tea and Coffee as environment friendly products, published by the Ministry of Environment and Forests.’

(*Page 2, clause 5.5*) — Add the following clauses after clause 5.5:

‘5.6 Optional Requirements for ECO Mark

5.6.1 General Requirements

5.6.1.1 The product shall conform to the requirements of quality prescribed under clauses 5.1 to 5.5.

5.6.1.2 The manufacturers shall produce to BIS environmental consent clearance from the concerned State Pollution Control Board as per the norms laid down under the *Water (Prevention and Control of Pollution) Act, 1974*; *Air (Prevention and Control of Pollution) Act, 1981*; *Water (Prevention and Control of Pollution) Cess Act, 1977* respectively, along with the authorization, if required under the *Environment (Protection) Act, 1986*, while applying for ECO Mark.

5.6.2 Specific Requirements

Amend No. 1 to IS 13680 : 1993

5.6.2.1 The product shall not contain aflatoxin, more than 5 mg/kg, when tested by the method prescribed in Annex A.

5.6.2.2 The pesticide residues, if any, shall not exceed the tolerance limits as prescribed in the *Prevention of Food Adulteration Act, 1954* and *Rules* made thereunder.

5.6.2.3 Only permitted antioxidants not exceeding the quantities specified against each as prescribed under the *Prevention of Food Adulteration Act, 1954* and *Rules* made thereunder, shall be used, if required.

5.6.2.4 The product shall not contain any of the toxic metals in excess of the quantities prescribed in Table 3.

TABLE 3 LIMITS FOR TOXIC METALS

Sl. No.	CHARACTERISTIC	REQUIREMENT	METHOD OF TEST, REF TO
i)	Lead, mg/kg, <i>Max</i>	5.0	15 of IS 1699 : 1995*
ii)	Arsenic, mg/kg, <i>Max</i>	0.5	do
iii)	Cadmium, mg/kg, <i>Max</i>	1.0	do
iv)	Mercury (total) mg/kg, <i>Max</i>	0.25	do

*Methods of sampling and test for food colours (*second revision*).

(*Page 2, clause 6*) — Renumber the existing clause as 6.1 and add the following clause 6.1.1 after 6.1:

‘6.1.1 For ECO Mark the product shall be packed in such packages which are made from recyclable (that is which can be re-processed to manufacture any useful product) or biodegradable materials.’

(*Page 2, clause 7.3*) — Add the following clause 7.4 after clause 7.3:

“7.4 For ECO Mark the containers shall be marked with the following information:

- List of identified critical ingredients in descending order of quantity, percent by mass, which shall include ‘made from imported rapseed oil’;
- The brief criteria for which the product has been labelled for ECO Mark; and
- Shelf life of the product.”

Amend No. 1 to IS 13680 : 1993

(Page 4, Table 2) — Add the following Annex after Table 2:

**'ANNEX A
(Clause 5.6.2.1)**

DETERMINATION OF AFLATOXIN

A-1 REAGENTS

A-1.1 Acetone, 70 Percent — 700 ml acetone in 300 ml distilled water.

A-1.2 Acetone, 20 Percent — 200 ml acetone in 800 ml distilled water.

A-1.3 Lead Acetate, 20 Percent — 200 g neutral acetate in distilled water and 3 ml glacial acetic acid, diluted to one litre.

A-2 PROCEDURE

A-2.1 Dissolve 30 g sample in 100 ml hexane.

A-2.2 Extract with 3 × 50 ml 70 percent acetone.

A-2.3 To the extract add 60 ml distilled water and 20 ml lead acetate.

A-2.4 Boil to reduce volume to 150 ml. Cool to about 20°C.

A-2.5 Filter and wash with 20 percent acetone.

A-2.6 Extract filtrate and washings with 3 × 50 ml chloroform.

A-2.7 Pass chloroform layer through anhydrous sodium sulphate.

A-2.8 Concentrate to 50 ml and spot on TLC plate.

A-3 CALCULATION

$$\text{Aflatoxin, mg/kg} = \frac{V \times s \times 1\,000}{v \times m}$$

where

V = volume of extract in ml,

v = volume of extract giving minimum observable fluorescence in μl ,

m = mass of sample in g, and

s = standard toxin giving minimum observable fluorescence in μg .

(FAD 44)

Reprography Unit, BIS, New Delhi, India

**AMENDMENT NO. 2 MARCH 2002
TO
IS 13680 : 1993 IMPORTED RAPESEED OIL —
SPECIFICATION**

*(Amendment No. 1, page 2, clause 5.6.2.1) — Substitute '5 µg/kg' for
'5 mg/kg'.*

(FAD 44)

Reprography Unit, BIS, New Delhi, India

FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Oils and Oilseeds Sectional Committee had been approved by the Food and Agriculture Division Council.

India is importing a huge quantity of rapeseed oil and rapeseeds for the past many years. The western countries have carried out extensive work to alter the rapeseed genetically. The objective of this change is two-fold — to reduce the erucic acid content and to reduce the glucosinolate content in the rapeseed. This has resulted in producing varieties of rapeseed which have almost zero percent erucic acid and very low glucosinolate content. Indian rapeseeds contain about 45 percent erucic acid. The reduction in erucic acid is accompanied by an increase in the oleic acid. Therefore, the iodine value of the low erucic acid rapeseed oil is higher than the normal Indian rapeseed oil. Also, because of the reduction in high molecular weight erucic acid, the saponification value of such an oil is higher than the normal Indian rapeseed oil. However all the rapeseeds produced in the western countries are not of low erucic varieties. The erucic acid content may vary from 0 to 50 percent in the rapeseed grown abroad.

Low erucic rapeseed oil, with less than 5 percent erucic acid, contains 45-65 percent oleic acid, 15-25 percent linoleic acid and 7-13 percent linolenic acid as the major fatty acids. High erucic rapeseed oil, with erucic acid more than 40 percent contains 12-20 percent oleic acid, 15-25 percent linoleic acid, 7-13 percent linolenic acid and 40-50 percent erucic acid as the major fatty acids. The varieties having erucic acid between 5 and 50 percent will show proportional increase in the oleic acid content as the erucic acid content is reduced.

This Indian Standard has been formulated to prescribe the requirements for the two varieties of imported rapeseed oil being used in the country : (a) those containing up to 5 percent erucic acid, and (b) those containing above 5 percent erucic acid.

The requirements of this standard take care of the provisions of the *Prevention of Food Adulteration Act, 1954* and Rules framed thereunder.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (revised)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

IMPORTED RAPESEED OIL — SPECIFICATION

1 SCOPE

1.1 This standard prescribes the requirements and methods of sampling and test for imported rapeseed oil.

2 REFERENCES

2.1 The following Indian Standards are necessary adjuncts to this standard:

IS No.	Title
548 (Part 1) : 1964	Methods of sampling and test for oils and fats : Part 1 Sampling, physical and chemical test (<i>revised</i>)
548 (Part 2) : 1976	Methods of sampling and test for oils and fats : Part 2 Purity test (<i>third revision</i>)
548 (Part 2/Sec 9) : 1988	Methods of sampling and test for oils and fats : Part 2 Purity tests, Section 9 Test for presence of <i>Karanja</i> (<i>Pungam</i>) oil in other oils (<i>fourth revision</i>)
548 (Part 2/Sec 20) : 1983	Methods of sampling and test for oils and fats: Part 2 Purity tests, Section 20 Test for detection of Taramira oil.
548 (Part 2/Sec 21) : 1988	Methods of sampling and test for oils and fats : Part 2 Purity tests, Section 21 Test for detection of animal fat in vegetable oils and fats and <i>vice-versa</i> by GLC (<i>fourth revision</i>)
548 (Part 3) : 1976	Method of sampling and test for oils and fats : Part 3 Analysis by gas liquid chromatography
1070 : 1992	Reagent grade water (<i>third revision</i>)
1448 [P : 21] : 1970	Method of test for petroleum and its products : [P : 21] Flash point (closed) by Pensky Martens apparatus
11476 : 1985	Glossary of terms relating to oils and fats

3 TERMINOLOGY

For the purpose of this standard, the definitions given in IS 11476 : 1985 and those given below shall apply.

3.1 **Imported Rapeseed Oil** — Imported rapeseed oil means:

- a) The oil obtained from clean and sound rapeseed grown abroad or rapeseed cake belonging to *campestris* or *napus* varieties of *Brassica*, by the method of expression or solvent extraction and imported into India, or
- b) The oil produced in India from clean and sound imported rapeseed or rapeseed cake belonging to *campestris* or *napus* varieties of *Brassica*, by the method of expression or solvent extraction.

3.2 Refined Imported Rapeseed Oil

Imported rapeseed oil obtained by the process of expression or solvent-extraction which has been neutralized with alkali or deacidified by the physical refining process, bleached with bleaching earth and/or activated carbon or both, and deodorized with steam, no other chemical agent being used.

4 VARIETIES, TYPES AND GRADES

4.1 Varieties

The material shall be of two varieties, one containing erucic acid 5 percent maximum and the other containing erucic acid above 5 percent. The variety shall be decided by finding the fatty acid composition of the oil using gas liquid chromatographic method prescribed in IS 548 (Part 3) : 1976.

4.2 Types and Grades

Both the varieties shall be of the following types and grades:

- a) *Expressed Type*
 - Refined grade
 - Raw grade 1
 - Raw grade 2
- b) *Solvent-Extracted Type*
 - Refined grade
 - Raw grade 1
 - Raw grade 2

4.2.1 The refined grade of imported rapeseed oil of the expressed and solvent-extracted types and the raw grades of the expressed type are suitable for direct edible consumption.

4.2.2 Raw grade 1 of the solvent-extracted type is suitable for making refined oil and not for direct edible consumption.

4.2.3 Raw grade 2 of the solvent-extracted type is intended for industrial uses only, either directly or after refining.

5 REQUIREMENTS

5.1 Description

The material shall be obtained from good quality rapeseed cake or from clean and sound rapeseeds grown abroad and belonging to *Brassica campestris* Linn. or *Brassica napus* Linn., by a process or solvent-extraction or expression.

5.2 The material shall be clear and free from rancidity, sediments, suspended and other foreign matter, separated water and added colouring and flouring substances.

5.2.1 The clarity of the material shall be judged by the absence of turbidity after keeping the filtered sample at 30°C for 24 hours.

5.3 Admixture with Other Oils

The material shall be free from admixture with other oils and adulterants when tested according to the methods prescribed in IS 548 (Part 2) : 1976 as well as Sections 9, 20 and 21 of IS 548 (Part 2).

5.4 Freedom from Argemone Oil and Hydrocyanic Acid

The material shall also be free from argemone (*Argemone mexicana* Linn) oil and hydrocyanic acid when tested as prescribed in 10 and 11 of IS 548 (Part 2) : 1976.

5.5 The material shall also comply with the requirements given in Table 1 for the low erucic variety and those given in Table 2 for the variety containing above 5 percent erucic acid.

6 PACKING

The material shall be packed in suitably sealed and well-closed containers.

7 MARKING

7.1 The containers shall be marked with the following informations:

- Name, variety, type and grade of the material;
- Net mass of the contents;
- Manufacturer's name and address and/or recognized trade-mark, if any;
- Batch number or lot number in code or otherwise; and
- Month and year of manufacture.

7.2 In addition, in case of raw grade 1 of the solvent extracted type which is not suitable for direct edible consumption, the following information shall be suitably and indelibly marked (either printed on label affixed to the container or lithographed or stencilled thereon with indelible ink) in type size of not less than 50 mm.

‘NOT FOR DIRECT EDIBLE
CONSUMPTION’

7.3 In case of raw grade 2 solvent extracted type which is intended for industrial use only the following information shall be suitably marked as prescribed in 7.2.

‘FOR INDUSTRIAL NON-EDIBLE USE
ONLY’

8 SAMPLING

8.1 Representative samples of the material shall be drawn as prescribed under 3 of IS 548 (Part 1) : 1954.

9 QUALITY OF REAGENTS

9.1 Unless specified otherwise pure chemicals and distilled water (*see* IS 1070 : 1992) shall be used in the tests.

NOTE — Pure chemicals shall mean chemicals that do not contain impurities which affect the results of analysis.

Table 1 Requirements for Low Erucic Imported Rapeseed Oil Containing up to 5 Percent Erucic Acid*(Clause 5.5)*

Sl No.	Characteristic	Requirements for Types						Method of Test, Ref to
		Expressed			Solvent-Extracted			
		Refined	Raw Grade 1	Raw Grade 2	Refined	Raw Grade 1	Raw Grade 2	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
i)	Moisture and insoluble impurities, percent by mass, <i>Max</i>	0.1	0.25	0.25	0.1	1.00	1.25	5 and 6 of IS 548 (Part 1) : 1964
ii)	Colour in 1/4" cell on the Lovibond scale, expressed as Y+5R, not deeper than	15	40	50	15	60	100	13 of IS 548 (Part 1) : 1964
iii)	Refractive index at 40°C	← 1.4640 to 1.4690 →						10 of IS 548 (Part 1) : 1964
iv)	Saponification value	← 185 to 198 →						15 of IS 548 (Part 1) : 1964
v)	Iodine value (wijs)	← 110 to 126 →						14 of IS 548 (Part 1) : 1964
vi)	Acid value, <i>Max</i>	0.5	1.5	6.0	0.5	6.0	20	7 of IS 548 (Part 1) : 1964
vii)	Unsaponifiable matter, percent by mass, <i>Max</i>	1.2	2.0	2.0	1.2	2.0	2.0	8 of IS 548 (Part 1) : 1964
viii)	Specific gravity at 30°C/30°C	← 0.910 — 0.918 →						11 of IS 548 (Part 1) : 1964
ix)	Bellier turbidity tem- perature at °C, <i>Max</i>	← 19.0 →						13 of IS 548 (Part 2) : 1976
x)	Flash point, Pensky Martens (closed cup), °C, <i>Min</i>	250	250	250	250	120	120	Part 21 of IS 1448 : 1970

Table 2 Requirements for Imported Rapeseed Oil Containing Erucic Acid Above 5 Percent
(Clause 5.5)

Sl No.	Characteristic	Requirements for Types						Method of Test, Ref to
		Expressed			Solvent-Extracted			
		Refined	Raw Grade 1	Raw Grade 2	Refined	Raw Grade 1	Raw Grade 2	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
i)	Moisture and insoluble impurities, percent by mass, <i>Max</i>	0.1	0.25	0.25	0.1	1.00	1.25	5 and 6 of IS 548 (Part 1) : 1964
ii)	Colour in 1/4" cell on the Lovibond scale, expressed as Y+5R, not deeper than	15	40	50	15	60	100	13 of IS 548 (Part 1) : 1964
iii)	Refractive index at 40°C	←—————1.4600 to 1.4690—————→						10 of IS 548 (Part 1) : 1964
iv)	Saponification value	←—————166 to 198—————→						15 of IS 548 (Part 1) : 1964
v)	Iodine value (wijs)	←—————94 to 126—————→						14 of IS 548 (Part 1) : 1964
vi)	Acid value, <i>Max</i>	0.5	1.5	6.0	0.5	6.0	20	7 of IS 548 (Part 1) : 1964
vii)	Unsaponifiable matter, percent by mass, <i>Max</i>	1.2	2.0	2.0	1.2	2.0	2.0	8 of IS 548 (Part 1) : 1964
viii)	Specific gravity at 30°C/30°C	←—————0.904 — 0.916—————→						11 of IS 548 (Part 1) : 1964
ix)	Bellier turbidity temperature, at °C, <i>Max</i>	←—————19.0—————→						13 of IS 548 (Part 2) : 1976
x)	Flash point, Pensky Martens (closed cup), °C, <i>Min</i>	250	250	250	250	120	120	Part 21 of IS 1448 : 1970

Standard Mark

The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act, 1986* and the Rules and Regulations made thereunder. The Standard Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well defined system of inspection, testing and quality control which is devised and supervised by BIS and operated by the producer. Standard marked products are also continuously checked by BIS for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

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Doc : No FAD 44 (7)

Amendments Issued Since Publication

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